

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/508331

416 Rec'd PCT/PTO 09 MAR 2000

INTERNATIONAL APPLICATION NO.
PCT/DE98/01568

INTERNATIONAL FILING DATE
09 June 1998
(09.06.98)

PRIORITY DATE CLAIMED:
09 September 1997
(09.09.97)

TITLE OF INVENTION
RECEIVER IN AN ANTENNA BASE

APPLICANT(S) FOR DO/EO/US
ROPPEL, Rüdiger; RODE, Detlef and WIETZKE, Joachim

Applicant(s) herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) immediately rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3))
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (UNSIGNED).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: International Search Report, Preliminary Examination Report and PCT/RO/101.

U.S. APPLICATION NO. if known, see 37 C.F.R. 1.5

INTERNATIONAL APPLICATION NO.

ATTORNEY'S DOCKET NUMBER

09/508331

PCT/DE98/01568

10191/1321

17. ☒ The following fees are submitted:**Basic National Fee (37 CFR 1.492(a)(1)-(5)):**

Search Report has been prepared by the EPO or JPO \$840.00

International preliminary examination fee paid to USPTO (37 CFR 1.482) .. \$670.00

No international preliminary examination fee paid to USPTO (37 CFR 1.482) but
international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00Neither international preliminary examination fee (37 CFR 1.482) nor international
search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00International preliminary examination fee paid to USPTO (37 CFR 1.482) and all
claims satisfied provisions of PCT Article 33(2)-(4) \$96.00

CALCULATIONS | PTO USE ONLY

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ENTER APPROPRIATE BASIC FEE AMOUNT =

\$ 840

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months
from the earliest claimed priority date (37 CFR 1.492(e)).

\$

Claims	Number Filed	Number Extra	Rate		
Total Claims	10 - 20 =	0	X \$18.00	\$0	
Independent Claims	2 - 3 =	0	X \$78.00	\$0	
Multiple dependent claim(s) (if applicable)			+ \$260.00	\$	

TOTAL OF ABOVE CALCULATIONS =

\$840

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must
also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$

SUBTOTAL =

\$840

Processing fee of \$130.00 for furnishing the English translation later the ☐ 20 ☐ 30
months from the earliest claimed priority date (37 CFR 1.492(f)).

+

\$

TOTAL NATIONAL FEE =

\$840

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

+

\$

TOTAL FEES ENCLOSED =

\$840

Amount to be:
refunded

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charged

\$

- a. ☐ A check in the amount of \$_____ to cover the above fees is enclosed.
- b. ☒ Please charge my Deposit Account No. 11-0600 in the amount of \$840.00 to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 11-0600. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Kenyon & Kenyon

One Broadway

New York, New York 10004

SIGNATURE

Richard L. Mayer, Reg. No. 22,490

NAME

DATE

3/9/00

[10191/1321]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Rüdiger ROPPEL et al.
Serial No. : To Be Assigned
Filed : Herewith
For : RECEIVER IN AN ANTENNA BASE
Examiner : To Be Assigned
Group Art Unit : To Be Assigned

Assistant Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Kindly amend the above-identified application before examination
as follows:

IN THE SPECIFICATION:

On page 1, delete lines 1 and 2, and insert:

- -Field Of The Invention- -.

On page 1, line 3, before "invention" insert - -present- -; and
change "concerns" to - -relates to- -.

On page 1, line 6, delete "from", and after "radio receiver" insert
- -.- -.

On page 1, delete line 7.

On page 1, before line 9, insert:
- -Background Information- -.

On page 1, delete lines 22 and 23, and insert

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- Summary Of The Invention - .

On page 1, lines 24 and 25, delete "having the features of the main claim".

On page 2, delete lines 22-25.

On page 3, delete lines 6-20 and insert:

- Brief Description Of The Drawings

Figure 1 shows an antenna with a receiver tuner arranged in its base.

Figure 2 shows a block diagram of the tuner including the tuner components arranged in the base of the antenna.

Figure 3 shows the interconnected components in a motor vehicle.

Detailed Description - .

On page 6, line 21, change "1" to - 2- .

On page 8, line 1, change "Claims" to

- What Is Claimed Is:- .

IN THE CLAIMS:

Please cancel claims 1-8, without prejudice.

Please add the following new claims:

9. (New) A receiver comprising:
at least one electrical component;
an antenna having a base; and

a tuner connected to the antenna, the tuner being situated in the base of the antenna, the tuner being spatially separated from the at least one electrical component, the tuner having at least one terminal for connecting the tuner to at least one of: (a) the at least one electrical component, and (b) at least one further component external to the receiver.

10. (New) The receiver according to claim 9, wherein the receiver is a radio receiver for a motor vehicle.

11. (New) The receiver according to claim 9, wherein the tuner includes a bus interface and a microcontroller, the bus interface being connected to the microcontroller and to the at least one terminal for transmitting control data.

12. (New) The receiver according to claim 9, wherein the tuner includes:
a further terminal for transmitting useful data;
an encoding circuit;
an interface circuit connecting the further terminal to the encoding circuit; and
a further tuner component connected to the encoding circuit.

13. (New) The receiver according to claim 9, wherein the at least one electrical component includes an operator control, the tuner being connected to the operator control via the at least one terminal.

14. (New) The receiver according to claim 9, wherein the tuner has a further terminal for transmitting useful data, wherein the at least one electrical component includes an operator control, and wherein the further terminal connects the tuner to the operator control.

15. (New) A tuner for a receiver, the receiver having an antenna and at least one electrical component, the antenna having a base, the tuner comprising:

a tuner device situated in the base of the antenna; and
at least one terminal for connecting the tuner to the at least one
electrical component of the receiver.

16. (New) The tuner according to claim 15, wherein the receiver is a radio
receiver for a motor vehicle.

17. (New) The tuner according to claim 15, wherein the tuner device is
detachably situated in the base of the antenna.

18. (New) The tuner according to claim 15, further comprising at least one of:
means for receiving radio signals;
means for transmitting and receiving mobile telephone signals;
and
means for receiving navigational data transmitted according to a
GPS standard.

IN THE ABSTRACT:

On page 10, delete the lines 1 and 2, and insert:

-- Abstract Of The Disclosure--.

On line 4, change "vehicle" to - -vehicle,- -; and delete "(1)" and
"(3)".

On lines 5-6, delete "(2)", "(1)" and "(5)".

On line 7, delete "(20, 21)".

On line 8, delete "(22)".

REMARKS

This Preliminary Amendment cancels, without prejudice, original claims 1-8 in the underlying PCT Application No. PCT/DE98/01568, and adds new claims 9-18. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

The amendments to the specification and abstract are to conform the specification and abstract to U.S. Patent and Trademark Office rules, and do not introduce new matter into the application.

The underlying PCT Application No. PCT/DE98/01568 includes an International Search Report, dated November 16, 1998, a copy of which is included. The Search Report includes a list of documents that were considered by the Examiner in the underlying PCT application.

The underlying PCT Application No. PCT/DE98/01568 also includes an International Preliminary Examination Report, dated July 1, 1999, a copy of which is included, including a translation.

Applicants assert that the present invention is new, non-obvious, and useful. Prompt consideration and allowance of the claims are respectfully requested.

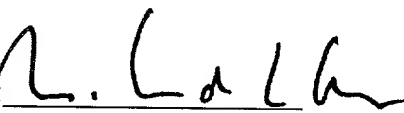
Respectfully Submitted,

KENYON & KENYON

Dated:

3/9/00

By:



Richard L. Mayer
Reg. No. 22,490

One Broadway
New York, NY 10004
(212) 425-7200

2/PRTS

09/508331

514 Rec'd PCT/PTO 09 MAR 2000

[10191/1321]

RECEIVER IN AN ANTENNA BASE

Background Information

The invention concerns a receiver, in particular a radio receiver for installation in a motor vehicle, whose tuner
5 connected to an antenna is spatially separated from other receiver components, and from a tuner for a radio receiver according to the preamble of the independent claims.

German Patent Application No. 43 03 110 A1 describes a radio receiver system having an antenna amplifier, a tuner and a low-frequency part. To avoid running an antenna cable from the antenna amplifier, i.e., the antenna, to the tuner, which is usually complicated, and to reduce interference of the received high-frequency radio signal susceptible to interference while it is being transmitted via the antenna cable, it is proposed that the customary link containing a tuner and low-frequency amplifier be replaced by a direct spatial link of the antenna amplifier and the tuner to a switching module and that this unit be placed at a suitable
20 location within the car body.

Advantages of the Invention

The receiver according to the present invention having the
25 features of the main claim has the advantage over the related art that the antenna cable between the antenna and the antenna amplifier is no longer needed due to the spatial link of the tuner of a (radio) receiver including the tuner component and the antenna. Thus the sensitivity of the
30 received radio signal to stray interference is reduced in

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comparison with the related art.

By integrating the tuner into the antenna base, it is no longer necessary, in the case of a (radio) receiver intended for installation in a motor vehicle, to look for a suitable location for the installation of the tuner or to install it at the suitable location, which is often difficult.

Another advantage is that the tuner can be integrated, via at least one terminal for control data and/or useful data, into a complex communication network in the vehicle, which may contain, in addition to the components of a conventional radio receiver, other external components such as, for example, a compact disc player or a receiver for GPS signals.

Relocation of the tuner including the tuner component in the antenna base frees up space for other functions or components in the operator control, which is designed as an interface between the user and the communication network.

Advantageous refinements of and improvements on the receiver and tuner according to the present invention are possible as a result of the features described in the subclaims.

Thus, it is advantageous if the tuner is connected to the operator control and other components via the terminal for control data. If the system is properly wired for useful data, such as audio data, signals of different audio sources can be used in parallel at the same time at different positions in the vehicle.

By spatially separating the tuner from the operator control

and the other receiver components, the danger of severe mutual interference of the tuner and the processors in the operator control system is reduced.

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Drawing

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Exemplary embodiments of the present invention are illustrated in the drawing and elucidated in greater detail in the description that follows.

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Figure 1 shows an antenna with a receiver tuner arranged in its base;

Figure 2 shows a block diagram of the tuner including the tuner components arranged in the base of the antenna; and Figure 3 shows the interconnected components in a motor vehicle.

Detailed Description of the Embodiment

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Figure 1 shows an antenna 2 using the example of a vehicle antenna usually located on the roof of a vehicle in the form of a short-rod antenna. It has a base 3, which is in direct contact with sheet metal 8 of the vehicle body. In contrast, in another exemplary embodiment of the present invention, base 3 of antenna 2 is arranged under the sheet metal of the body and only antenna 2 itself protrudes outward through the sheet metal.

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A tuner 1 for a radio receiver installed in the motor vehicle is arranged in base 3 of antenna 2, with tuner 1 in the present embodiment being detachably connected to antenna 2 and to antenna base 3 for the purpose of easier repair or

replacement of one of the components (antenna / tuner).

Tuner 1 has a power supply terminal 7, a terminal 5 for control data and a second terminal 6 for useful data, each of which in the present case are guided through into the vehicle interior in the form of lines through bores in the sheet metal of the body.

Figure 2 shows the circuit of tuner 1, which is connected to antenna 2. The output of antenna 2 is in contact with the input of a pre-amplifier 10 for the high-frequency received signals, in the case of a radio receiver for the received radio signals. The output of pre-amplifier 10 is connected to receiver circuit 11, hereinafter also referred to as tuner component 11. The output of receiver circuit 11 is connected to an encoding circuit 12, which is in turn connected to an interface circuit 15, whose output corresponds to second terminal 6 for useful data. Receiver circuit 11 has an additional connection to a microcontroller 14, which is in turn connected to a bus interface 13.

In tuner 1 according to the present invention, microcontroller 14 takes over all control functions so that, for example, commands issued by operator control 20 of the radio receiver, such as a change of broadcasting station, for example, are translated into appropriate control signals for tuning the tuner to another transmission frequency.

Bus interface 13 has a terminal 5 for control data. The high-frequency antenna signal received by antenna 2 is amplified in pre-amplifier 10 and sent to receiver circuit 11. The latter makes the received signal available in a standard format, which is converted in a downstream encoder

circuit 12 into a format suitable for transmission over greater distances. Such a format, which is suitable for transmission over several meters, for example, the distance between the antenna including the tuner and the data sink, is, for example, given by IEC 958. Before the signal is transmitted via data line 26 connected to second terminal 6 for useful signals, it is adjusted to the conditions of the transmission link in interface circuit 15. Data can be transmitted over data line 26 either via shielded cables or via fiber optic lines, for example. In either case, an interface circuit 15 is required. In the first case, galvanic isolation must take place in the circuit; in the second case the electric signal must be converted into an optical signal. Tuner 1, i.e., the receiver circuit 11 in particular, is controlled via a bus interface 13 and microcontroller 14. Receiver circuit 11 is activated via control line 25, which is connected to terminal 5 of tuner 1 for control data, for example, when the user desires to receive radio data.

Figure 3 shows a simple example of the communication network in a motor vehicle, including operator control 20 of the receiver, tuner 1 of the receiver, other components 21 of the receiver, such as the low-frequency amplifier for amplifying the audio signals to be reproduced or a display unit for displaying, for example, the name of a radio station being received, as well as, optionally, external components 22, connected to the receiver and/or to the communication network, such as, for example, a compact disc player, an additional low-frequency amplifier for amplifying audio data to be reproduced, or a receiver for receiving positioning data received via the GPS (Global Positioning System), or a navigation system.

Operator control 20 is connected to all the active components via data lines 26. Control output and/or control input of operator control 20 is connected to the control line or control and monitoring bus 25, which in turn has a terminal at the inputs/outputs of all other components 21 of the receiver and optionally of external components 22 connected to the receiver, i.e., the tuner. The component including tuner 1 and antenna 2 is also connected to control line 25 and data line 26.

Operator control 20 is used by the user to operate the communication network. It can be installed in the conventional position for a car radio, with it being capable of accommodating the functions of individual components. Operator control 20 can be configured as a pure operator control or may also have additional functions such as a GSM telephone. However, a mobile telephone transceiver and also, for example, a GPS receiver for receiving navigation data transmitted via the Global Positioning System (GPS), together with tuner 1 or as a part thereof can also be integrated in base 3 of antenna 1 within the scope of the present invention.

All other components 1, 21 of the receiver installed in the vehicle and external components 22 connected to the communication network are addressed via operator control 20 and the control line or control bus 25.

According to a refinement of the present invention, control data and useful data such as, for example, audio data can be transmitted via a common medium such as a copper cable or optic fibers, both control data and useful data accessing one and the same bus. If the user wishes to listen to the

radio in the front area of the vehicle, while the signals of other audio sources are to be output in the rear of the vehicle, this can be achieved without difficulty. The user issues a command to the tuner 1/antenna 2 combination to
5 activate reception. The radio data are transmitted to a data sink, which is suitable for outputting data in the front area of the vehicle. At the same time, operator control 20 can activate a compact disc player, for example, and output its data flow to a second data sink, for example, a speaker
10 located in the rear of the vehicle or a headset.

Claims

1. Receiver, in particular radio receiver for installation in a motor vehicle, having a tuner (1), which is connected to an antenna (2),
the tuner (1) being spatially separated from other components (20, 21) of the receiver,
characterized in that
the tuner (1) is located in the base (3) of the antenna (2),
and the tuner (1) has at least one terminal (5), via which
it is connectable and/or connected to other components (20, 21) of the receiver and/or to additional external components (22).
2. Receiver according to Claim 1,
characterized in that
the tuner (1) has a terminal (5) for control data,
and the terminal (5) for control data is attached to a bus interface (13) connected to a microcontroller (14).
3. Receiver according to Claim 1 or 2,
characterized in that
the tuner (1) has a second terminal (6) for useful data,
and the second terminal (6) for useful data is attached to an encoding circuit (12) via an interface circuit (15), the encoding circuit (12) being connected to a tuner component (11) of the tuner (1).
4. Receiver according to one of Claims 1 through 3,
characterized in that the tuner (1) is connected to an operator control (20) via a terminal (5) for control data and to other components (21).

5. Receiver according to one of Claims 1 through 4, characterized in that the tuner (1) is connected to at least the operator control (20) via a second terminal (6) for useful data.

6. Tuner (1) for a receiver, in particular for a radio receiver intended for installation in a motor vehicle, which is connected to an antenna (2), characterized in that the tuner (1) is located in the base (3) of the antenna (2), and the tuner (1) has at least one terminal (5), via which it is connectable to other components (20, 21) of the receiver.

7. Tuner according to Claim 6, characterized in that the tuner (1) is detachably located in the base (3) of the antenna (2).

8. Tuner according to Claim 6 or 7, characterized in that the tuner (1) is designed both for receiving radio signals and for transmitting and receiving mobile telephone signals and/or for receiving navigational data transmitted according to the GPS standard.

Abstract

A receiver, preferably a receiver for installation in a motor vehicle has a tuner (1) located in the base (3) of the antenna (2), and the tuner (1) has at least one terminal (5), via which it is connectable and/or connected to other components (20, 21) of the receiver and/or to additional external components (22).

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FIG. 1

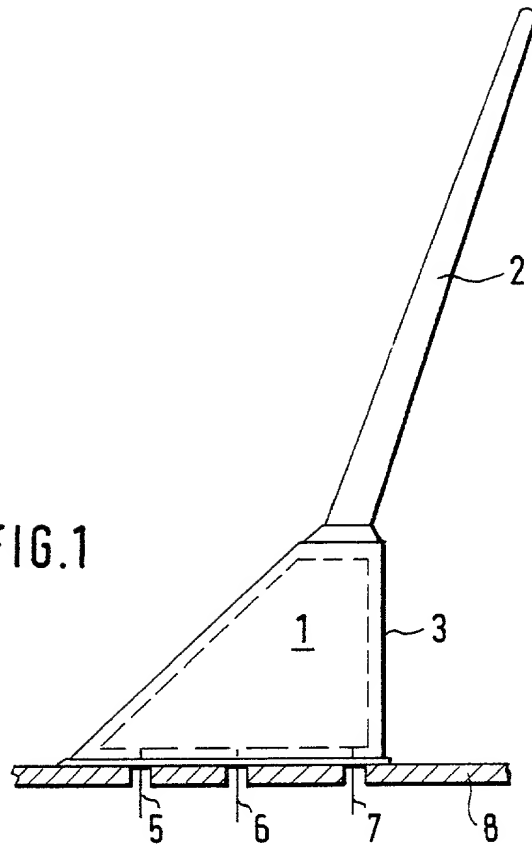
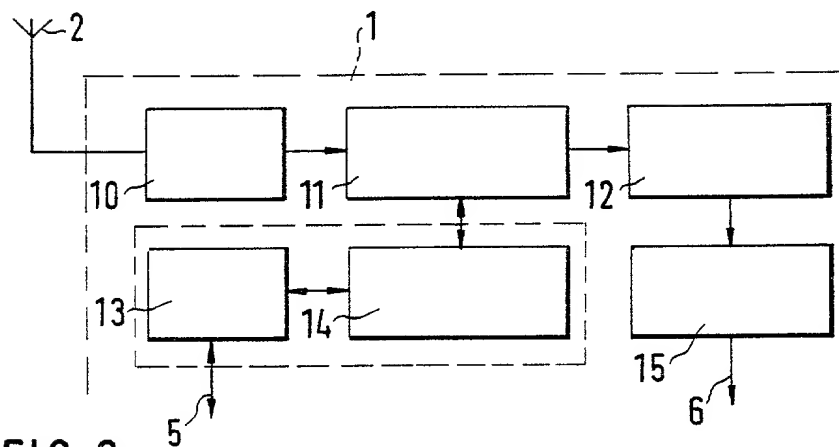


FIG. 2



2 / 2

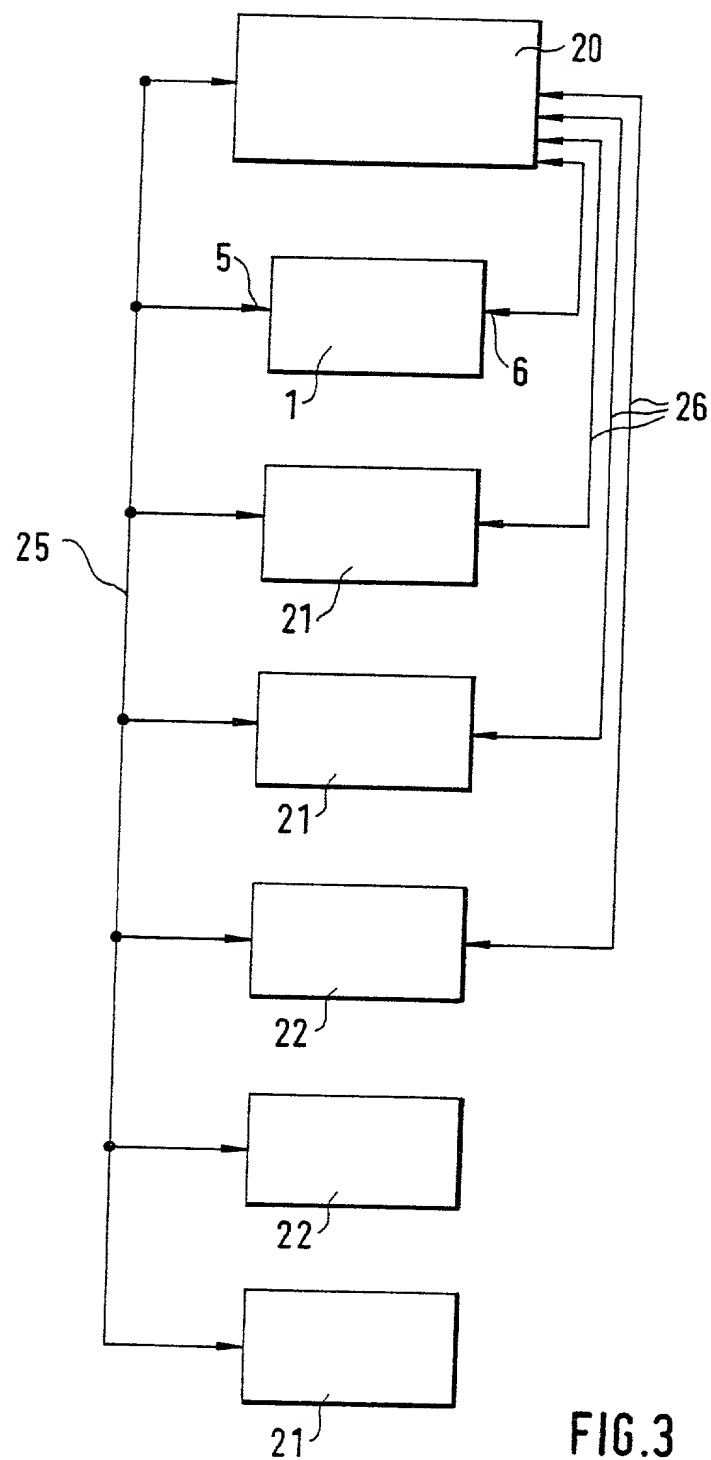
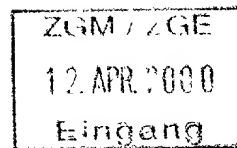


FIG.3



**COMBINED DECLARATION AND
POWER OF ATTORNEY FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **"RECEIVER IN AN ANTENNA BASE"**, and the specification of which:

- ☐ is attached hereto;
- ☐ was filed as United States Application Serial No. _____ on _____, 19__ and was amended by the Preliminary Amendment filed on _____, 19__.
- ☒ was filed as PCT International Application Number PCT/DE98/01568, on the 9th day of June, 1998.
- ☒ an English translation of which is filed herewith.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a). I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international applications(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S)



AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119

Country : Germany

Application No. : 197 39 395.0

Date of Filing: September 9, 1997

Priority Claimed

Under 35 U.S.C. § 119 : ☒ Yes ☐ No

I hereby claim the benefit under Title 35, United States Code § 120 of any United States Application or PCT International Application designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

**PRIOR U.S. APPLICATIONS OR
PCT INTERNATIONAL APPLICATIONS
DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. § 120**

U.S. APPLICATIONS

Number :

Filing Date :

**PCT APPLICATIONS
DESIGNATING THE U.S.**

PCT Number :

PCT Filing Date :

I hereby appoint the following attorney(s) and/or agents to prosecute the above-identified application and transact all business in the Patent and Trademark Office connected therewith.

(List name(s) and registration number(s)):

Richard L. Mayer,	Reg. No. <u>22,490</u>
Gerard A. Messina,	Reg. No. <u>35,952</u>
_____	Reg. No. _____
_____	Reg. No. _____



All correspondence should be sent to:

Richard L. Mayer, Esq.
Kenyon & Kenyon
One Broadway
New York, New York 10004

Telephone No.: (212) 425-7200
Facsimile No.: (212) 425-5288

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.



Full name of inventor 1-00 Rüdiger ROPPEL

Inventor's signature Rüdiger Roppel Date 18.04.00

Citizenship Federal Republic of Germany

Residence Bismarckstraße 7a
31135 Hildesheim
Federal Republic of Germany DEX

Post Office Address Same as above



2-00
Full name of inventor Detlef RODE

Inventor's signature Detlef Rode Date 31 March 2000

Citizenship Federal Republic of Germany

Residence Matzdorfer Weg 14a
30966 Hemmingen
Federal Republic of Germany DEX

Post Office Address Same as above

3-00
Full name of inventor Joachim WIETZKE

Inventor's signature Joachim Wietzke Date 8.4.00

Citizenship Federal Republic of Germany

Residence Ludwig-Erhard-Ring 10

31141 Hildesheim

Federal Republic of Germany

DE

Post Office Address Same as above